First Quarter 2005
Groundwater Monitoring Report

Fernbridge Market
Fernbridge, California
Case No. 12345

Prepared for:

Lindsay Investments

Consulting Engineers & Geologists, Inc.

812 W. Wabash
Eureka, CA 95501-2138
707/441-8855

April 2005
098076

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Abbreviations and Acronyms

<	Denotes a value that is “less than” the method detection limit.
mV	millivolts
ppm	parts per million
ug/L	micrograms per Liter

BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
DCO_2	Dissolved Carbon Dioxide
DO	Dissolved Oxygen
EC	Electrical Conductivity
EPA	U.S. Environmental Protection Agency
HCDEH	Humboldt County Division of Environmental Health
MSL	Mean Sea Level
MTBE	Methyl Tertiary-Butyl Ether
MW-#	Monitoring Well-#
ORP	Oxidation-Reduction Potential
SHN	SHN Consulting Engineers & Geologists, Inc.
TPHG	Total Petroleum Hydrocarbons as Gasoline
UST	Underground Storage Tank

1.0 Introduction

This report presents the activities and results of the first quarter 2005 quarterly groundwater monitoring conducted at the Fernbridge Market site, located at 623 Fernbridge Drive in the community of Fernbridge, California (Figure 1). On March 8, 2005, SHN Consulting Engineers & Geologists, Inc. (SHN) performed the quarterly groundwater monitoring and sampling, as requested by the Humboldt County Division of Environmental Health (HCDEH). SHN is submitting this quarterly groundwater monitoring report on behalf of Lindsay Investments.

1.1 Background

The Fernbridge Market site formerly contained two 650-gallon Underground Storage Tanks (USTs) used for the storage of gasoline (Figure 2). The former USTs and associated dispenser pump were used for fueling vehicles (retail sales). When Lindsay Investments purchased the site, the dispenser pump had been removed, but the USTs remained in place. The ages of the former USTs are not known. The piping located between the USTs and the dispenser pump was buried underground, and the dispenser was located within 15 feet of the former USTs.

On March 13, 1996, the USTs were removed, and visible evidence of petroleum contamination was observed in the soil. Based upon observations by the HCDEH and the subsequent laboratory test results, an unauthorized release report was filed. On March 4, 1999, SHN conducted an initial soil and groundwater investigation adjacent to and hydraulically downgradient of the former USTs. Based upon the investigation results and laboratory testing, the HCDEH requested that a soil and groundwater investigation be conducted to assess site conditions downgradient of the former USTs.

On May 16, 2000, SHN directed the installation of four groundwater monitoring wells at the Fernbridge Market site (MW-1 through MW-4, Figure 2). SHN has performed quarterly groundwater monitoring at the site since June 6, 2000. Subsequent soil and groundwater investigations have since been conducted at the site in September 2001, and April 2002.

A remedial action was completed at the site in December 2004 to remove contaminant-impacted material. Approximately 621 tons of petroleum hydrocarbon-impacted soil were removed from the site based on the presence of soil contamination identified from previous site investigations (SHN, March 2005).

Two site monitoring wells located within the planned excavation area were properly abandoned by overdrilling, prior to commencement of excavation activities (MW-1 and MW-4, Figure 2). Monitoring well MW-5 was installed at the site in the backfilled portion of the excavation area on February 9, 2005, to replace the abandoned wells. The first quarter 2005 monitoring event conducted on March 8, 2005, was the first sampling event to occur at the site since June 30, 2004.

1.2 Objective

The objective of this groundwater monitoring program is to assess current groundwater conditions beneath the site, and to evaluate the effectiveness of the mitigation efforts completed to date.

1.3 Scope of Work

This scope of work is intended to meet the objective of this investigation. As part of the investigation, all three groundwater monitoring wells at the site were measured for depth to water and sampled for field parameters and laboratory analysis. All work was conducted in accordance with the approved monitoring plan and site safety plan developed for this project.

2.0 Field Activities

2.1 Monitoring Well Sampling

As part of the monitoring program, monitoring wells MW-2, MW-3, and MW-5 were purged and sampled (Figure 2). Prior to purging, each monitoring well was measured for depth to water, and checked for the presence of floating product (none was observed). Electrical Conductivity (EC), pH, and temperature were monitored periodically during purging activities using portable instrumentation. All wells were also measured for Dissolved Oxygen (DO), Oxidation-Reduction Potential (ORP), and Dissolved Carbon Dioxide (DCO_2).

A groundwater sample was then collected from each well utilizing a disposable polyethylene bailer. The water samples were immediately placed in an ice-filled cooler, and submitted to the laboratory for analyses under appropriate chain-of-custody documentation. Groundwater monitoring data sheets are included in Appendix A.

2.2 Laboratory Analysis

Each groundwater sample was analyzed for:

- Total Petroleum Hydrocarbons as Gasoline (TPHG), analyzed in general accordance with U.S. Environmental Protection Agency (EPA) Method No. 8260B.
- Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), in general accordance with EPA Method No. 8260B.
- Methyl Tertiary-Butyl Ether (MTBE), in general accordance with EPA Method No. 8260B.

North Coast Laboratories, Ltd., a state certified analytical laboratory located in Arcata, California, completed the sample analysis.

2.3 Equipment Decontamination Procedures

All monitoring and sampling equipment was cleaned prior to being transported to the site. All smaller equipment was initially washed in a water solution containing Liquinox® cleaner, followed by a distilled water rinse, then by a second distilled water rinse. The groundwater samples were then collected using pre-cleaned, disposable bailers, and transferred into laboratory-supplied containers.

2.4 Investigation-Derived Waste Management

All rinse water used for decontaminating field-sampling equipment and the well purge water was temporarily stored on site in a 50-gallon plastic drum. The water was then transported to SHN's 1,000-gallon purge water storage tank located at 812 West Wabash Avenue in Eureka, California. Approximately 24 gallons of decontamination and purge water from the March 8, 2005, sampling event are being stored at SHN, and will eventually be tested and discharged, under permit, to the City of Eureka municipal sewer system. A discharge receipt will be included in the next quarterly report.

3.0 Groundwater Monitoring Results

3.1 Hydrogeology

SHN measured depth-to-groundwater elevations in the existing monitoring wells during the first quarter 2004, monitoring event (Table 1).

Table 1
Groundwater Elevations, March 8, 2005
Fernbridge Market, Fernbridge, California

Sample Location	Top of Casing Elevation[1] (feet)	Depth to Water[2] (feet)	Groundwater Elevation (feet MSL)[3]
MW-2	39.47	4.28	35.19
MW-3	39.75	6.06	33.69
MW-5	39.53	4.15	35.38

1. Referenced to North American Vertical Datum 88 Datum.
2. Below top of casing.
3. feet MSL: feet above Mean Sea Level

On March 8, 2005, the groundwater flow beneath the Fernbridge Market site was to the southwest, toward the Eel River, with an approximate gradient of 0.105. A groundwater contour map for the March 8, 2005, monitoring event is presented as Figure 3. Historic groundwater elevations and gradients are presented in Appendix A, Tables A-1 and A-2, respectively.

3.2 Groundwater Analytical Results

The laboratory analytical results for the groundwater samples collected during the first quarter 2005, monitoring event are summarized in Table 2. TPHG was detected in the groundwater sample from well MW-5, at a concentration of 16,000 micrograms per Liter (ug/L). BTEX components were also detected in this well at concentrations of 1,400 ug/L, 1,200 ug/L, 520 ug/L, and 1,740 ug/L, respectively. MTBE was detected in the groundwater sample collected from well MW-2 at a concentration of 1.8 ug/L. MTBE was not detected in any other groundwater samples collected during this monitoring event. No detectable concentrations of TPHG or BTEX components were present in the groundwater samples from wells MW-2 and MW-3 during the March 8, 2005,

monitoring event. The complete analytical test results, chain-of-custody documentation, and laboratory quality control data are included in Appendix C. Historic analytical results are included in Appendix A, Table A-3.

Table 2
Groundwater Analytical Results, March 8, 2005
Fernbridge Market, Fernbridge, California
(in ug/L)[1]

Sample Location	TPHG[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]	MTBE[3]
MW-2	<50	<0.5	<0.5	<0.5	<0.5	1.8
MW-3	<50	<0.5	<0.5	<0.5	<0.5	<1.0
MW-5	16,000	1,400	1,200	520	1,740	<3.0

1. ug/L: micrograms per Liter.
2. Total Petroleum Hydrocarbons as Gasoline (TPHG), analyzed in general accordance with EPA Method No. 8260B.
3. Benzene, Toluene, Ethylbenzene, total Xylenes, and Methyl Tertiary-Butyl Ether (MTBE), analyzed in general accordance with EPA Method No. 8260B.
4. The value includes the reported gasoline components and additives in addition to other peaks in the gasoline range.
5. <: Denotes a value that is "less than" the method detection limit.

3.3 Natural Attenuation Parameters

DO, DCO_2, and ORP were measured in monitoring wells MW-2, MW-3, and MW-5, prior to sampling, and are summarized in Table 3.

Table 3
DO, DCO_2, and ORP Measurement Results, March 8, 2005
Fernbridge Market, Fernbridge, California

Sample Location	DO[1] (ppm)[2]	DCO_2[3] (ppm)	ORP[4] (mV)[5]
MW-2	1.31	100	82
MW-3	1.76	80	26
MW-5	2.75	100	65

1. DO: Dissolved Oxygen, field measured using portable instrumentation.
2. ppm: Measurement concentration, in parts per million.
3. DCO_2: Dissolved Carbon Dioxide, field measured using a field test kit.
4. ORP: Oxidation-Reduction Potential measured using portable instrumentation.
5. mV: millivolts

During the March 8, 2005, groundwater monitoring event, DO concentrations ranged from 1.31 parts per million (ppm) in well MW-2, to 2.75 ppm in well MW-5. These DO concentrations appear to be sufficient to support biodegradation. DCO_2 concentrations ranged from 80 ppm in well MW-3 to 100 ppm in wells MW-2 and MW-5. The DCO_2 concentrations measured in the existing wells indicate that biodegradation is occurring. ORP measurements for this quarter ranged from -26 millivolts (mV) in monitoring well MW-3, to 82 mV in monitoring well MW-2, indicating that aerobic and anaerobic conditions exist at the Fernbridge Market site. Historical natural attenuation parameter measurements are presented in Appendix B, Table B-3.

4.0 Discussion and Recommendations

The following conclusions are based on the results of the first quarter 2005, groundwater monitoring event:

- Elevated concentrations of TPHG and BTEX were present in the groundwater sample collected from well MW-5 during the March 8, 2005, monitoring event.
- A low concentration of MTBE was detected in the groundwater sample collected from well MW-2.
- No detectable concentrations of TPHG or BTEX were present in the groundwater samples from wells MW-2 and MW-3 during the first quarter 2005 monitoring event.
- ORP levels indicate aerobic and anaerobic conditions exist at the Fernbridge Market site. In addition, DO and DCO_2 concentrations indicate that natural attenuation of petroleum hydrocarbons is occurring at the site.
- Groundwater flow at the site is to the southwest, with an approximate gradient of 0.105.

Most of the impacted soil was removed and appropriately disposed; however, a portion below the structure remains.

Groundwater monitoring well MW-5 is located within the gravel backfilled excavation area of the site. The elevated levels of petroleum constituents present in MW-5 are likely associated with the disturbance of contaminated soil during the excavation process. This disturbance resulted in the desorption of petroleum hydrocarbons into the groundwater within the excavated area. Continued groundwater monitoring will demonstrate that the petroleum hydrocarbons found in well MW-5 will decrease over time as a result of biodegradation. The next groundwater monitoring event is scheduled for June 2005.

Appendix A

Historic Monitoring Data

Appendix B

Field Notes

Appendix C

Laboratory Analytical Reports

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707-441-8855 • Fax 707-441-8877 • info@shn-eureka.com

Reference: 098076

April 21, 2005

Mr. Bob Stone
Humboldt County Division of Environmental Health
100 H Street, Suite 100
Eureka, CA 95501

Subject: First Quarter 2005 Groundwater Monitoring Report, Fernbridge Market, Fernbridge, California; Case No. 12345

Dear Mr. Stone:

SHN Consulting Engineers & Geologists, Inc. (SHN) is submitting this first quarter 2005 groundwater monitoring report for the Fernbridge Market, located at 623 Fernbridge Drive, in Fernbridge, California. SHN performed the quarterly groundwater monitoring and sampling at the site, on March 8, 2005, as requested by the Humboldt County Division of Environmental Health.

If you have any questions, please call me at (707) 441-8855.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

Patrick Barsanti

Patrick Barsanti
Project Manager

PNB/EJN:lms
Enclosure: Report
copy w/encl: Lindsay Investments

Reference: 098076

First Quarter 2005
Groundwater Monitoring Report

Fernbridge Market
Fernbridge, California
Case No. 12345

Prepared for:

Lindsay Investments

Prepared by:

Consulting Engineers & Geologists, Inc.
812 W. Wabash Ave.
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April 2005

QA/QC:PNB

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DAILY FIELD REPORT

JOB NO 098076
Page 1 of 9

PROJECT NAME: Fernbridge Market	CLIENT/OWNER: Lindsay Investments	DAILY FIELD REPORT SEQUENCE NO: 1	
GENERAL LOCATION OF WORK: Fernbridge, CA.	OWNER/CLIENT REPRESENTATIVE: Dick Lindsay	DATE: 3-8-05	DAY OF WEEK: Monday
TYPE OF WORK: Quarterly Sampling	WEATHER: Clear	PROJECT ENGINEER/ SUPERVISOR: Pat Barsanti	
SOURCE & DESCRIPTION OF FILL MATERIAL	KEY PERSONS CONTACTED	TECHNICIAN: David R. Paine	

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, & COMPACTING

0928	arrived at site, Removed lids and caps on 3 wells.
1001	I started taking water levels decoming the sounder after each well by scrubbing it with liquinox then rinsing it with D I water.
1024	I started taking D O Readings.
1024	I started purging mw-5 with the aid of the peristaltic pump, purge water was caught in a graduated 5 gal. bucket, well goes dry.
1053	I started purging mw-3 with a disposable bailer, purge water was caught in a graduated 5 gal. bucket.
1125	I started purging mw-2 with a disposable bailer, purge water was caught in a graduated 5 gal. bucket.
1230	I sampled mw-3 with its disposable bailer, secured well with cap and lid.
1245	I sampled mw-2 with its disposable bailer, secured well with cap and lid.
1300	I sampled mw-5 with a disposable bailer, secured well with cap and lid.
1333	OFF SITE
Note:	All decon water and purge water was caught and put into 5 gal. buckets with lids then transported to SHN's 1,000 gal. PWST located at 812 W. Wabash Avenue Eureka, CA 24 gallons total.

COPY GIVEN TO:

REPORTED BY: David R. Paine

K:\Forms\Field Forms\Daily Field Report.doc

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Groundwater Elevations

Job No.: 098076 Name: David R. Paine

Client: Dick Lindsay Date: 3-8-05

Location: FERNBRIDGE, CA. Weather: Clear

Sample Location	Time of Reading	Top of Casing Elevation (feet)	Depth To Water (feet)	Water Surface Elevation (feet)
MW-1	—	~~39.60~~	Destroyed during excavation	
MW-2	1003	39.47	4.28	35.19
MW-3	1001	39.75	6.06	33.69
MW-4	—	~~39.73~~	Destroyed during excavation	
MW-5	1005	39.53	4.15	35.38

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EQUIPMENT CALIBRATION SHEET

Name: David R. Paine

Project Name: Fernbridge Market

Reference No.: 098076

Date: 3-8-05

Equipment: ☒ pH & EC ☐ PID ☐ $GTCO_2$ ☐ GTLEL
☐ Turbidity ☒ Other Dissolved Oxygen Meter YSI95

Description of Calibration Procedure and Results:

pH & EC meter is calibrated using a 2 buffer method with 7.01 and 4.01, the EC (conductivity) is set at 1413 µS.

DO meter is self calibrating with the Altimeter set at 0.

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Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	3-8-05
Project No.:	098076	Sampler Name:	David R. Pain
Location:	Fernbridge, CA	Sample Type:	Ground water
Well #:	MW-1	Weather	
Hydrocarbon Thickness/Depth (feet):	NA	Key Needed:	YES Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
20.00	-		=		x	0.163	=	

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
							0 gal.	
	↓	DESTROYED			DURING		0.25 gal	
							gal.	
	No Flow						gal.	
	thru cell	Excavation						
	sample	time						

Purge Method: Hand Bail Total Volume Removed: _____ (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-1	3 - 40ml VOA's	YES HCL	NCL	8260 list 4

Well Condition: Good

Remarks:

Recharged to at sampling time

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Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	3-8-05
Project No.:	098076	Sampler Name:	David R. Pain
Location:	Fernbridge, CA	Sample Type:	Ground water
Well #:	MW-4	Weather	
Hydrocarbon Thickness/Depth (feet):	NA	Key Needed:	YES Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
20.10	-		=		x	0.163	=	

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
							0 gal.	
	↓	DESTOYED		DURING			0.25 gal.	
							gal.	
	No Flow						gal.	
	Thru cell	Excavation						
	sample	time						

Purge Method: Hand Bail

Total Volume Removed: _____ (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-4	3 - 40ml VOA's	YES HCL	NCL	8260 list 4

Well Condition: Good

Remarks:

Recharged to at sampling time

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Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	3-8-05
Project No.:	098076	Sampler Name:	David R. Pain-
Location:	Fernbridge, CA	Sample Type:	Ground water
Well #:	MW-2	Weather	Clear
Hydrocarbon Thickness/Depth (feet):	NA	Key Needed:	YES Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
19.65	-	4.28	=	15.37	x	0.163	=	2.51

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1044	1.31						0 gal.	
1125	↓	100	82				0.25 gal.	
1135	↓			463	62.8°	6.12	2.50 gal.	
1141	No Flow			476	62.9°	6.17	5 gal.	
1147	thru cell			495	63.7°	6.26	7.50 gal.	
1153				513	63.9°	6.31	10 gal.	
1205				523	64.5°	6.40	12.50 gal.	
1245	sample	time						

Purge Method: Hand Bail

Total Volume Removed: 12.50 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-2	3 - 40ml VOA's	YES HCL	NCL	8260 list 4

Well Condition: Good

Remarks:

Recharged to 10.20 at sampling time

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Water Sampling Data Sheet

Project Name: Fernbridge Market
Project No.: 098076
Location: Fernbridge, CA
Well #: MW-5
Hydrocarbon Thickness/Depth (feet): NA
Date/Time: 3-8-05
Sampler Name: David R. Pain
Sample Type: Ground water
Weather: Clear
Key Needed: YES Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
14.80	-	4.15	=	10.65	x	0.045	=	0.48

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1019	2.75						0 gal.	DRY
1034	↓	100	65				0.25 gal.	DRY
1040	↓			518	62.2°	6.43	0.25 gal.	DRY
1115	No Flow			490	64.3°	6.55	0.50 gal.	DRY
1155	thru cell						0.55 gal.	DRY
				473	64.9°	6.56	0.60 gal.	DRY
1300	sample	time						

Purge Method: ~~Hand Bail~~ Peristaltic pump Total Volume Removed: 0.60 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-5	3 - 40ml VOA's	YES HCL	NCL	8260 list 4

Well Condition: Good

Remarks: Recharged to 1333 at sampling time

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Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	3-8-05
Project No.:	098076	Sampler Name:	David R. Pain-
Location:	Fernbridge, CA	Sample Type:	Ground water
Well #:	MW-3	Weather	Clear
Hydrocarbon Thickness/Depth (feet):	NA	Key Needed:	YES Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
20.05	-	6.06	=	13.99	x	0.163	=	2.28

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1037	1.76						0 gal.	
1053	↓	80	26				0.25 gal.	
1102	↓			465	62.8°	6.19	2.50 gal.	
1112	No Flow			463	63.7°	6.14	5 gal.	
1121	Flow cell			466	64.3°	6.24	7.50 gal.	
1230	sample	time						

Purge Method: Hand Bail

Total Volume Removed: 7.50 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-3	3 - 40ml VOA's	YES HCl	NCL	8260 list 4

Well Condition: Good

Remarks:

Recharged to 17.24 at sampling time

NORTH COAST LABORATORIES LTD.
5680 West End Road • Arcata • CA 95521-9202
707-822-4649 Fax 707-822-6831

Chain of Custody

LABORATORY NUMBER: 0903203

Attention: Dick Lindsay
Results & Invoice to: Lindsay Investments
Address: P.O. Box 914
Fernbridge CA
Phone: 786-4556
Copies of Report to: SHN Erik Nielsen
812 W. Wabash Ave. Eureka, CA 95501-2138
Sampler (Sign & Print): David R. Paine David R. Paine

PROJECT INFORMATION
Project Number: 098076
Project Name: Fernbridge Market
Purchase Order Number:

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*	PRESERVATIVE	CONTAINER	ANALYSIS 8260 list 4
	MW-3	3/8/05	1230	GW	b	g	X
	MW-2	"	1245	"			X
	MW-5	↓	1300	↓			X

TAT: ☐ 24 Hr ☐ 48 Hr ☐ 5 Day ☐ 5–7 Day
☒ STD (2–3 Wk) ☐ Other:
PRIOR AUTHORIZATION IS REQUIRED FOR RUSHES

REPORTING REQUIREMENTS: State Forms ☐
Preliminary: FAX ☐ Verbal ☐ By: __/__/__
Final Report: FAX ☐ Verbal ☐ By: __/__/__

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—1 L cg; 9—40 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other

PRESERVATIVE CODES: a—HNO_3; b—HCl; c—H_2SO_4; d—$Na_2S_2O_3$; e—NaOH; f—$C_2H_3O_2Cl$; g—other

SAMPLE CONDITION/SPECIAL INSTRUCTIONS

EDF

Global ID # T0602300263

Cooler temp = 5.0 C

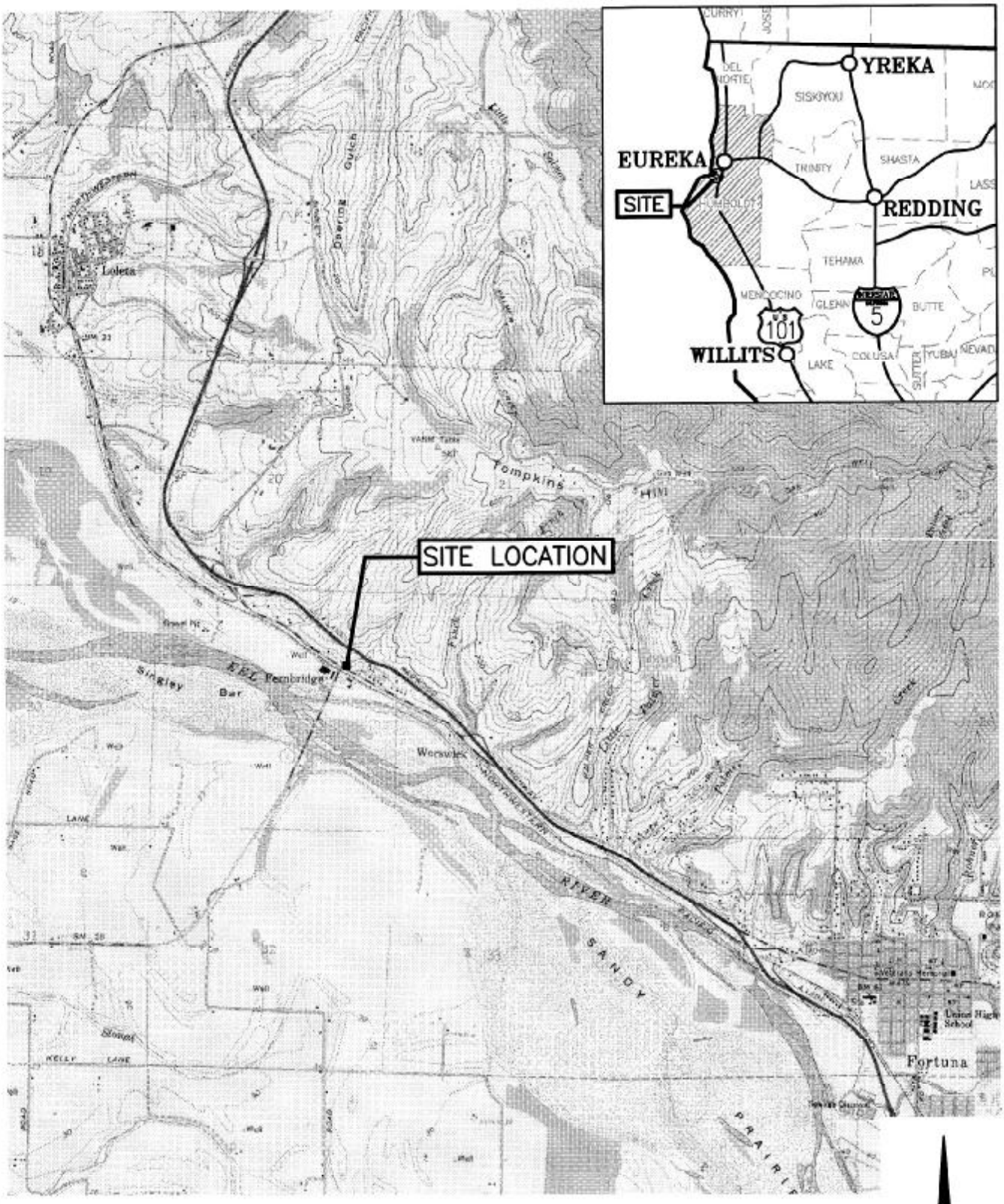
RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
David R. Paine David R. Paine	3/8/05 1730	DA RLC	1530 3/8/05

SAMPLE DISPOSAL
☒ NCL Disposal of Non-Contaminated
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA
SHIPPED VIA: UPS Air-Ex Fed-Ex Bus (Hand)

***MATRIX:** DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; S=Soil; O=Other.

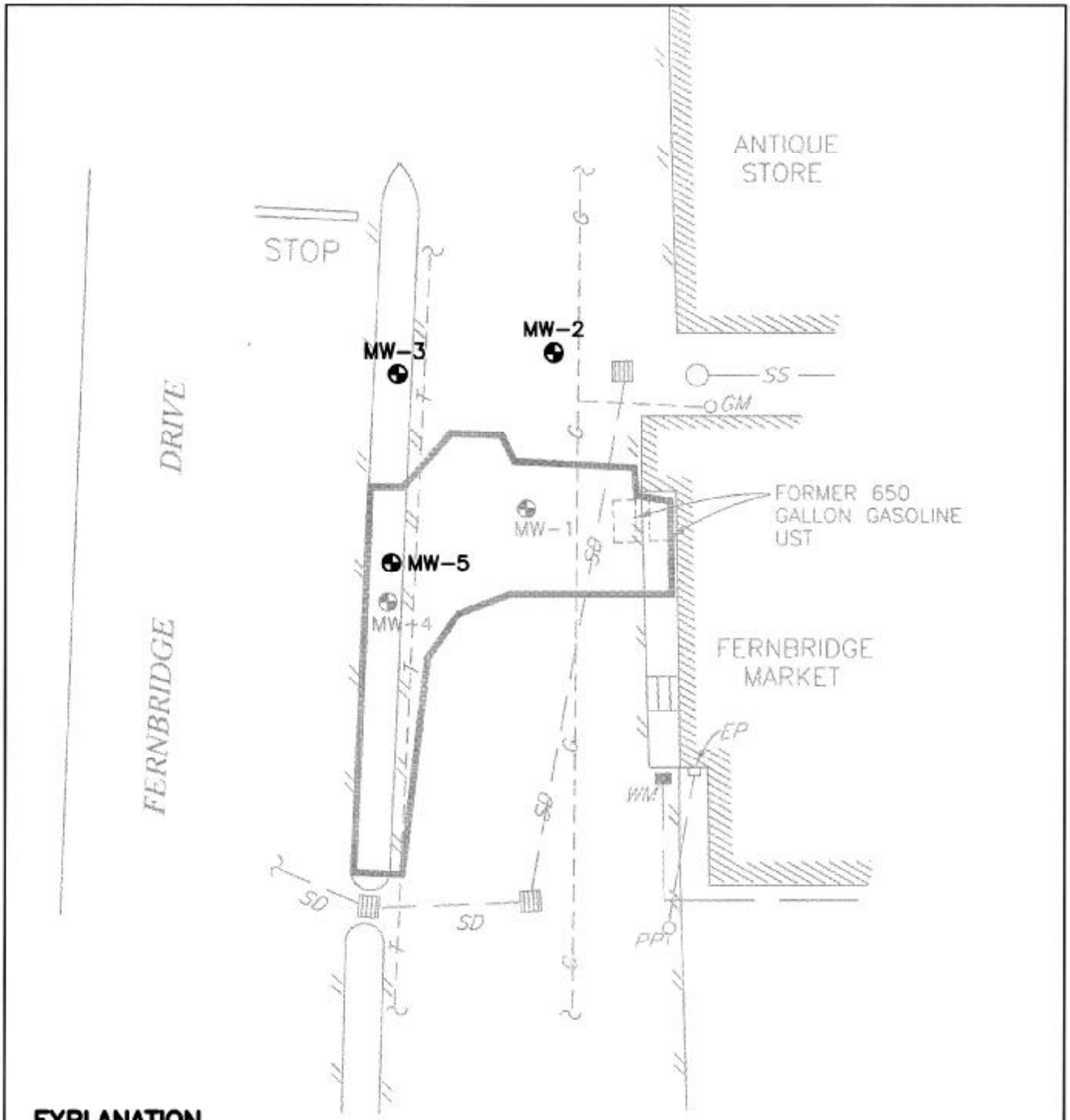
ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT



SOURCE: FORTUNA AND FIELDS LANDING USGS 7.5 MINUTE QUADRANGLES

1"=3000'±

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market UST Investigation Fernbridge, California	Site Location Map SHN 098076
	February, 2005	098076-location	Figure 1

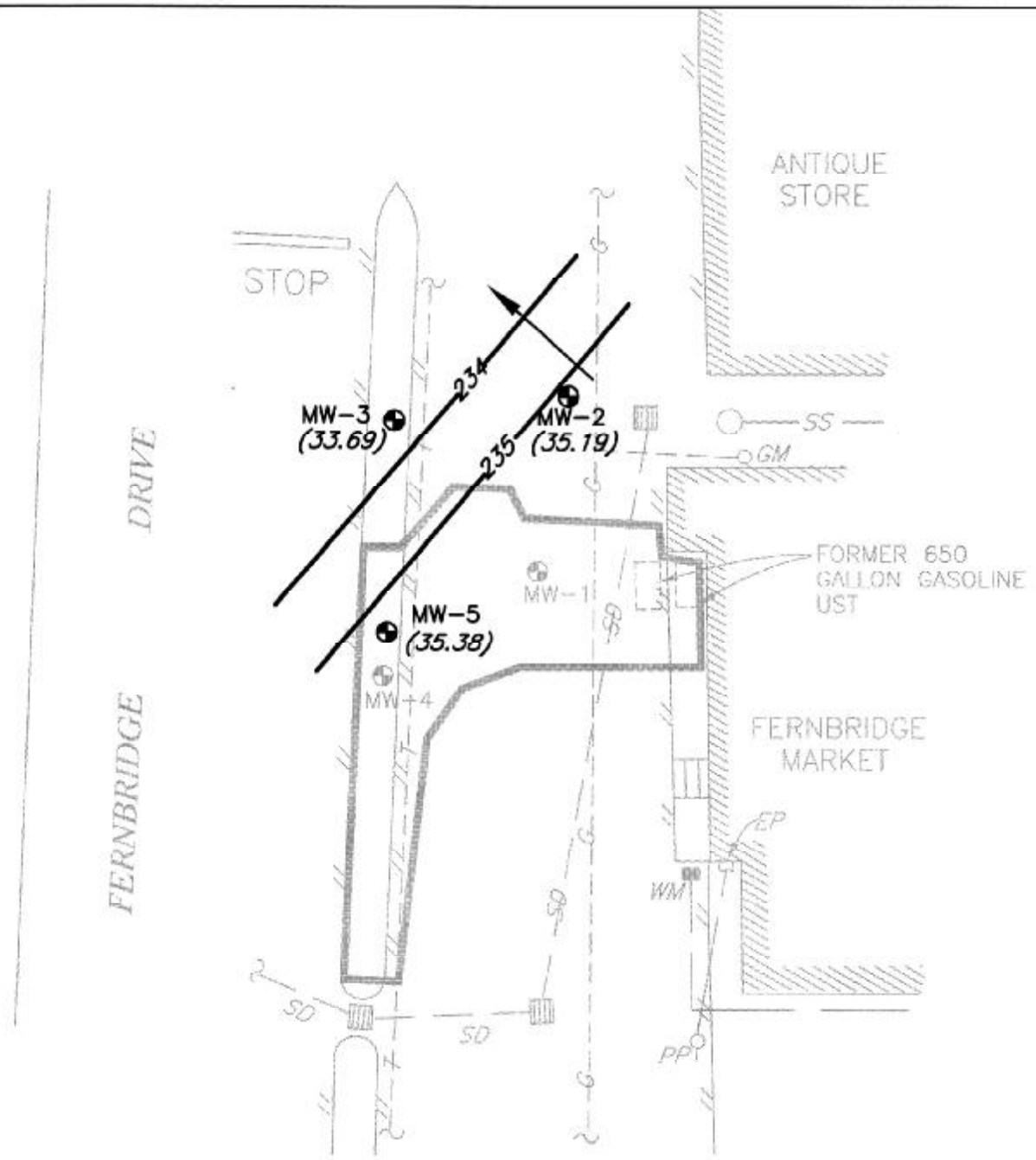


EXPLANATION

MW-2	MONITORING WELL LOCATION AND DESIGNATION
	EXCAVATION AREA
MW-1	FORMER SITE MONITORING WELL

1"=20'

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market Fernbridge, California	Site Plan SHN 098076	
	April, 2005	098076-EX-AREA-MONWELLS	Figure 2



EXPLANATION

- MW-1 — FORMER SITE MONITORING WELL
- EXCAVATION AREA
- MW-1 — MONITORING WELL LOCATION AND DESIGNATION
- (35.31) — GROUNDWATER ELEVATION
- —234— GROUNDWATER CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

1"=20'

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market Fernbridge, California	Groundwater Contour Map March 8, 2005 SHN 098076	
	April, 2005	098076-GWC-MAR-05	Figure 3

Table A-4
Historic DO, DCO_2, and ORP Measurement Results
Fernbridge Market, Fernbridge, California

Well ID	Date	DO[1] (ppm)[2]	DCO_2[3] (ppm)	ORP[5] (mV)[6]
MW-1	9/18/2000	0.63	120	45
	12/18/2000	0.78	60	94
	3/2/2001	0.4	90	93
	6/4/2001	0.09	70	183
	9/5/2001	0.13	60	72
	12/5/2001	0.3	70	161
	3/5/2002	0.23	60	81
	6/4/2002	0.37	120	215
	9/5/2002	0.3	120	234
	12/26/2002	0.48	50	125
	3/7/2003	1.3	95	246
	6/10/2003	0.39	65	234
	11/20/2003	0.61	80	265
	3/30/2004	0.6	140	280
	6/30/2004	0.53	90	39
	9/18/2000	0.6	120	110
	Well Destroyed 10/16/04			
MW-2	12/18/2000	0.75	80	95
	3/2/2001	0.83	80	62
	6/4/2001	0.12	80	159
	9/5/2001	0.14	80	161
	12/5/2001	0.21	70	213
	3/5/2002	1.11	70	68
	6/4/2002	0.38	70	208
	9/5/2002	0.31	85	223
	12/26/2002	0.53	80	145
	3/7/2003	3.05	90	240
	6/10/2003	0.4	50	224
	11/20/2003	0.7	50	259
	3/30/2004	0.72	70	290
	6/30/2004	0.56	60	118
	3/8/2005	1.31	100	82
MW-3	12/18/2000	1.86	100	75
	3/2/2001	3.53	80	54
	6/4/2001	2.2	80	152
	9/5/2001	1.81	100	164
	12/5/2001	3.76	50	56
	3/5/2002	3.85	70	37
	6/4/2002	1.95	60	200

Table A-4
Historic DO, DCO_2, and ORP Measurement Results
Fernbridge Market, Fernbridge, California

Well ID	Date	DO[1] (ppm)[2]	DCO_2[3] (ppm)	ORP[5] (mV)[6]
MW-3 Cont'd	9/5/2002	4.11	80	207
	12/26/2002	4.27	60	198
	3/7/2003	5.69	60	219
	6/10/2003	2.71	60	213
	11/20/2003	4.23	70	265
	3/30/2004	3.28	80	297
	6/30/2004	1.4	60	122
	3/8/2005	1.76	80	26
MW-4	12/18/2000	0.7	200	42
	3/2/2001	0.6	250	65
	6/4/2001	0.16	200	117
	9/5/2001	0.14	240	118
	12/5/2001	0.16	210	134
	3/5/2002	0.29	220	64
	6/4/2002	0.32	220	174
	9/5/2002	0.25	220	210
	12/26/2002	0.45	180	145
	3/7/2003	0.52	130	244
	6/10/2003	0.31	70	251
	11/20/2003	0.58	190	240
	3/30/2004	0.97	140	283
	6/30/2004	0.54	140	-102
	Well Destroyed 10/16/04			
MW-5	3/8/2005	2.75	100	65

1. DO: Dissolved Oxygen, field measured using portable instrumentation
2. ppm: Measured concenration, in parts per million
3. DCO_2: Dissolved Carbon Dioxide, field measured using a field test kit
4. ORP: Oxidation-Reduction Potential measured using portable instrumentation
5. mV: millivolts

NORTH COAST LABORATORIES LTD.

March 16, 2005

Pvt. cust. paying on pickup

,

Attn: Dick Lindsay-Lindsay Investments

RE: 098076, Fernbridge Market

Order No.: 0503203
Invoice No.: 48794
PO No.:
ELAP No. 1247-Expires July 2006

SAMPLE IDENTIFICATION

Fraction	Client Sample Description
01A	MW-3
02A	MW-2
03A	MW-5

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

All solid results are expressed on a wet-weight basis unless otherwise noted.

REPORT CERTIFIED BY

Laboratory Supervisor(s) | QA Unit | Jesse G. Chaney, Jr. Laboratory Director

5680 West End Road • Arcata California 95521-9202 • 707-822-4649 • FAX 707-822-6831

North Coast Laboratories, Ltd. **Date:** *16-Mar-05*

CLIENT: Pvt. cust. paying on pickup
Project: 098076, Fernbridge Market
Lab Order: 0503203

CASE NARRATIVE

Gasoline Components/Additives:
Sample MW-5 appears to be similar to gasoline but certain peak ratios are not that of a fresh gasoline standard. The reported result represents the amount of material in the gasoline range.

Some reporting limits were raised for sample MW-5 due to matrix interference.

The surrogate recoveries were below the lower acceptance limit for samples MW-3, MW-2 and the method blank. The response of the reporting limit standard was such that the analytes would have been detected even with the low recoveries; therefore, the data were accepted.

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

Date: 16-Mar-05
WorkOrder: 0503203

ANALYTICAL REPORT

Client Sample ID: MW-3 **Received:** 3/8/05 **Collected:** 3/8/05 12:30
Lab ID: 0503203-01A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1.0		3/10/05
Benzene	ND	0.50	µg/L	1.0		3/10/05
Toluene	ND	0.50	µg/L	1.0		3/10/05
Ethylbenzene	ND	0.50	µg/L	1.0		3/10/05
m,p-Xylene	ND	0.50	µg/L	1.0		3/10/05
o-Xylene	ND	0.50	µg/L	1.0		3/10/05
Surrogate: 1,4-Dichlorobenzene-d4	64.1	80.8-139	% Rec	1.0		3/10/05

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		3/10/05

Client Sample ID: MW-2 **Received:** 3/8/05 **Collected:** 3/8/05 12:45
Lab ID: 0503203-02A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	1.8	1.0	µg/L	1.0		3/10/05
Benzene	ND	0.50	µg/L	1.0		3/10/05
Toluene	ND	0.50	µg/L	1.0		3/10/05
Ethylbenzene	ND	0.50	µg/L	1.0		3/10/05
m,p-Xylene	ND	0.50	µg/L	1.0		3/10/05
o-Xylene	ND	0.50	µg/L	1.0		3/10/05
Surrogate: 1,4-Dichlorobenzene-d4	63.4	80.8-139	% Rec	1.0		3/10/05

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		3/10/05

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

Date: 16-Mar-05
WorkOrder: 0503203

ANALYTICAL REPORT

Client Sample ID: MW-5 **Received:** 3/8/05 **Collected:** 3/8/05 13:00
Lab ID: 0503203-03A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	3.0	µg/L	1.0		3/10/05
Benzene	1,400	25	µg/L	50		3/10/05
Toluene	1,200	25	µg/L	50		3/10/05
Ethylbenzene	520	25	µg/L	50		3/10/05
m,p-Xylene	1,000	25	µg/L	50		3/10/05
o-Xylene	740	25	µg/L	50		3/10/05
Surrogate: 1,4-Dichlorobenzene-d4	100	80.8-139	% Rec	1.0		3/10/05

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	16,000	2,500	µg/L	50		3/10/05

NORTH COAST LABORATORIES
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North Coast Laboratories, Ltd.

Date: 16-Mar-05

CLIENT: Pvt. cust. paying on pickup
Work Order: 0503203
Project: 098076, Fernbridge Market

QC SUMMARY REPORT
Method Blank

Sample ID **MB 031005** Batch ID: **R33863** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **3/10/05 4:48:00 AM** Prep Date

Client ID: Run ID: **ORGCMS2_050310B** SeqNo: **489935**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0									
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	0.1201	0.50									J
m,p-Xylene	ND	0.50									
o-Xylene	0.2298	0.50									J
1,4-Dichlorobenzene-d4	0.644	0.10	1.00	0	64.4%	81	139	0			S

Sample ID **MB 031005** Batch ID: **R33862** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **3/10/05 4:48:00 AM** Prep Date

Client ID: Run ID: **ORGCMS2_050310A** SeqNo: **489919**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	17.15	50									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

North Coast Laboratories, Ltd.

Date: 16-Mar-05

CLIENT: Pvt. cust. paying on pickup
Work Order: 0503203
Project: 098076, Fernbridge Market

QC SUMMARY REPORT
Laboratory Control Spike

Sample ID **LCS-05169** Batch ID: **R33863** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **3/10/05 12:40:00 PM** Prep Date
Client ID: Run ID: **ORGCMS2_050310B** SeqNo: **489932**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	17.47	1.0	20.0	0	87.3%	80	120	0			
Benzene	16.46	0.50	20.0	0	82.3%	78	117	0			
Toluene	16.53	0.50	20.0	0	82.7%	80	120	0			
Ethylbenzene	18.62	0.50	20.0	0	93.1%	80	120	0			
m,p-Xylene	34.81	0.50	40.0	0	87.0%	80	120	0			
o-Xylene	16.94	0.50	20.0	0	84.7%	80	120	0			
1,4-Dichlorobenzene-d4	1.05	0.10	1.00	0	105%	81	139	0			

Sample ID **LCSD-05169** Batch ID: **R33863** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **3/10/05 1:11:00 AM** Prep Date
Client ID: Run ID: **ORGCMS2_050310B** SeqNo: **489933**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	18.75	1.0	20.0	0	93.7%	80	120	17.5	7.07%	20	
Benzene	16.54	0.50	20.0	0	82.7%	78	117	16.5	0.542%	20	
Toluene	16.39	0.50	20.0	0	82.0%	80	120	16.5	0.867%	20	
Ethylbenzene	18.48	0.50	20.0	0	92.4%	80	120	18.6	0.756%	20	
m,p-Xylene	35.07	0.50	40.0	0	87.7%	80	120	34.8	0.741%	20	
o-Xylene	16.95	0.50	20.0	0	84.8%	80	120	16.9	0.0900%	20	
1,4-Dichlorobenzene-d4	1.07	0.10	1.00	0	107%	81	139	1.05	1.61%	20	

Sample ID **LCS-05170** Batch ID: **R33862** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **3/10/05 2:44:00 AM** Prep Date
Client ID: Run ID: **ORGCMS2_050310A** SeqNo: **489916**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	1,020	50	1,000	0	102%	80	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Pvt. cust. paying on pickup
Work Order: 0503203
Project: 098076, Fernbridge Market

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-05170** Batch ID: **R33862** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **3/10/05 3:15:00 AM** Prep Date

Client ID: Run ID: **ORGCMS2_050310A** SeqNo: **489917**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	1,019	50	1,000	0	102%	80	120	1,020	0.105%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

NORTH COAST LABORATORIES LTD.
5680 West End Road • Arcata • CA 95521-9202
707-822-4649 Fax 707-822-6831

Chain of Custody

LABORATORY NUMBER: 0903203

Attention: Dick Lindsay
Results & Invoice to: Lindsay Investments
Address: P.O. Box 914
Fernbridge CA
Phone: 786-4556
Copies of Report to: SHN Erik Nielsen
812 W. Wabash Ave. Eureka, CA 95501-2138
Sampler (Sign & Print): David R. Paine David R. Paine

PROJECT INFORMATION
Project Number: 098076
Project Name: Fernbridge Market
Purchase Order Number:

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*	CONTAINER	PRESERVATIVE	ANALYSIS 8260 list 4
	MW-3	3/8/05	1230	GW	9	b	X
	MW-2	↓	1245	↓	9	b	X
	MW-5	↓	1300	↓	9	b	X

TAT: ☐ 24 Hr ☐ 48 Hr ☐ 5 Day ☐ 5–7 Day
☒ STD (2–3 Wk) ☐ Other: _____
PRIOR AUTHORIZATION IS REQUIRED FOR RUSHES

REPORTING REQUIREMENTS: State Forms ☐
Preliminary: FAX ☐ Verbal ☐ By: __/__/__
Final Report: FAX ☐ Verbal ☐ By: __/__/__

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—1 L cg; 9—40 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other

PRESERVATIVE CODES: a—HNO_3; b—HCl; c—H_2SO_4; d—$Na_2S_2O_3$; e—NaOH; f—$C_2H_3O_2Cl$; g—other

SAMPLE CONDITION/SPECIAL INSTRUCTIONS
EDF
Global ID # T0602300263
Cooler temp = 5.0 C

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
David R. Paine David R. Paine	3/8/05 1430	DA RLC	3/8/05 1530

SAMPLE DISPOSAL
☒ NCL Disposal of Non-Contaminated
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA
SHIPPED VIA: UPS Air-Ex Fed-Ex Bus (Hand)

***MATRIX:** DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; S=Soil; O=Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT